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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,633	01/14/2002	Alexei Gorokhov	NL 010037	4799

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

FILE, ERIN M

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/046,633

Applicant(s)

GOROKHOV ET AL.

Examiner

Erin M. File

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9,11,12,20,21,23,24 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,11,12,20,21,23,24 and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Arguments

1. Applicant's arguments filed 12/22/2006 have been fully considered but they are not persuasive.
2. In response to applicant's arguments, the recitation transmitting a multilevel signal from a transmitter to a receiver, the transmitter comprising a mapper for mapping an input signal according to a signal constellation onto the multilevel signal, the receiver comprising a demapper for demapping the received multilevel signal according to the signal constellation, wherein the signal constellation comprises a number of signal points with corresponding labels, has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).
3. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1, 2, 4-9, 11, 12, 20, 21, 23, 24 and 26-29 are rejected under 35

U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 2, 4-9, 11, 12, 20, 21, 23, 24 and 26-29 are directed to a signal constellation.

The preambles to these claims include various tangible elements, however, the body of each of independent claims 1, 8, 11, 20, and 23 each recite a structure of a

constellation or a signal. Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena.

O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101. First, a claimed signal is clearly not a

"process" under § 101 because it is not a series of steps. The other three § 101 classes of machine, compositions of matter and manufactures "relate to structural entities and can be grouped as 'product' claims in order to contrast them with process claims." 1 D.

Chisum, Patents § 1.02 (1994). The addition to claim 23 that the signal is embodied in a computer readable medium does not overcome this rejection because the claim is still substantially reciting a signal.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4, 7, 8, 11, 20, 23, 26, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Alamouti (U.S. Patent No. 5,931,965).

Claims 1, 8, 11, 20, and 23, Alamouti discloses:

- $D_a > D_f$, with D_a being the minimum of the Euclidean distances between all pairs of signal points whose corresponding labels differ in a single position, and with D_f being the minimum of the Euclidean distances between all pairs of signal points (see fig. 1B which is described by Alamouti as signal constellation diagrams, which meet the limitations of $D_a > D_f$. The manner in which this constellation meets this limitation is described in detail in Office Action 8/23/2006)
- the average Hamming distance between all pairs of labels corresponding to neighboring signal points has a minimum value (the hamming distance equals the number of bits in any given character that must be changed to produce another legitimate character, constellation diagram fig. 1B disclosed by Alamouti as described in Claim 1 meets these limitations, Alamouti discusses the advantages of Hamming distances, see col. 9, line 55-col. 10, line 12)

Claims 4, 26, Alamouti discloses the signal constellation is a 16-QAM signal constellation (col. 7, lines 31-32).

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Claims 7,29, Alamouti discloses the signal constellation is a 8-PSK signal constellation (col. 6, lines 18-19).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5, 6, 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (U.S. Patent No. 5,931,965) as applied to claims 1 and 23 above, and further in view of the applicant's admitted prior art of record.

Claims 5, 27, Alamouti discloses the signal constellation is a 16-QAM signal constellation (col. 7, lines 31-32). Alamouti fails to disclose the signal constellation is a 64-QAM signal constellation, however, the applicant's admitted prior art discloses a 64-QAM signal constellation (p. 3, lines 11-14). Because the increase from 16 to 64 QAM increases the data rate and throughput of the signal, it would be obvious to one skilled in the art at the time of invention to incorporate the 64-QAM as disclosed by the applicants admitted prior art into the invention as disclosed by Alamouti.

Claims 6, 28, Alamouti discloses the signal constellation is a 16-QAM signal constellation (col. 7, lines 31-32). Alamouti fails to disclose the signal constellation is a 256-QAM signal constellation, however, the applicant's admitted prior art discloses a 256-QAM signal constellation (p. 3, lines 11-14). Because the increase from 16 to 256-

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QAM increases the data rate and throughput of the signal, it would be obvious to one skilled in the art at the time of invention to incorporate the 256-QAM as disclosed by the applicants admitted prior art into the invention as disclosed by Alamouti.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 1:00PM-9:30PM.

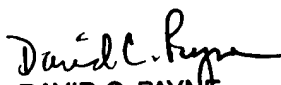
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571)272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File



3/21/2007



DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER